

PAM 557.326.3  
LISER

6C-17411	PRICE 1.80	DATE RECEIVED 4-17-61
Photocopy <input checked="" type="checkbox"/>	Microfilm <input type="checkbox"/>	Enlg. Print <input type="checkbox"/>
University of Alberta Boreal Institute Library Edmonton, Alberta Canada		
06737 F		
LC 7801-11 (REV. 10-58)		DATE COMPLETED

LIBRARY  
BOREAL INSTITUTE

MAY 8 1961

POLAR  
PAM  
2060

POLAR PAM





60 17 11  
T-R-207/

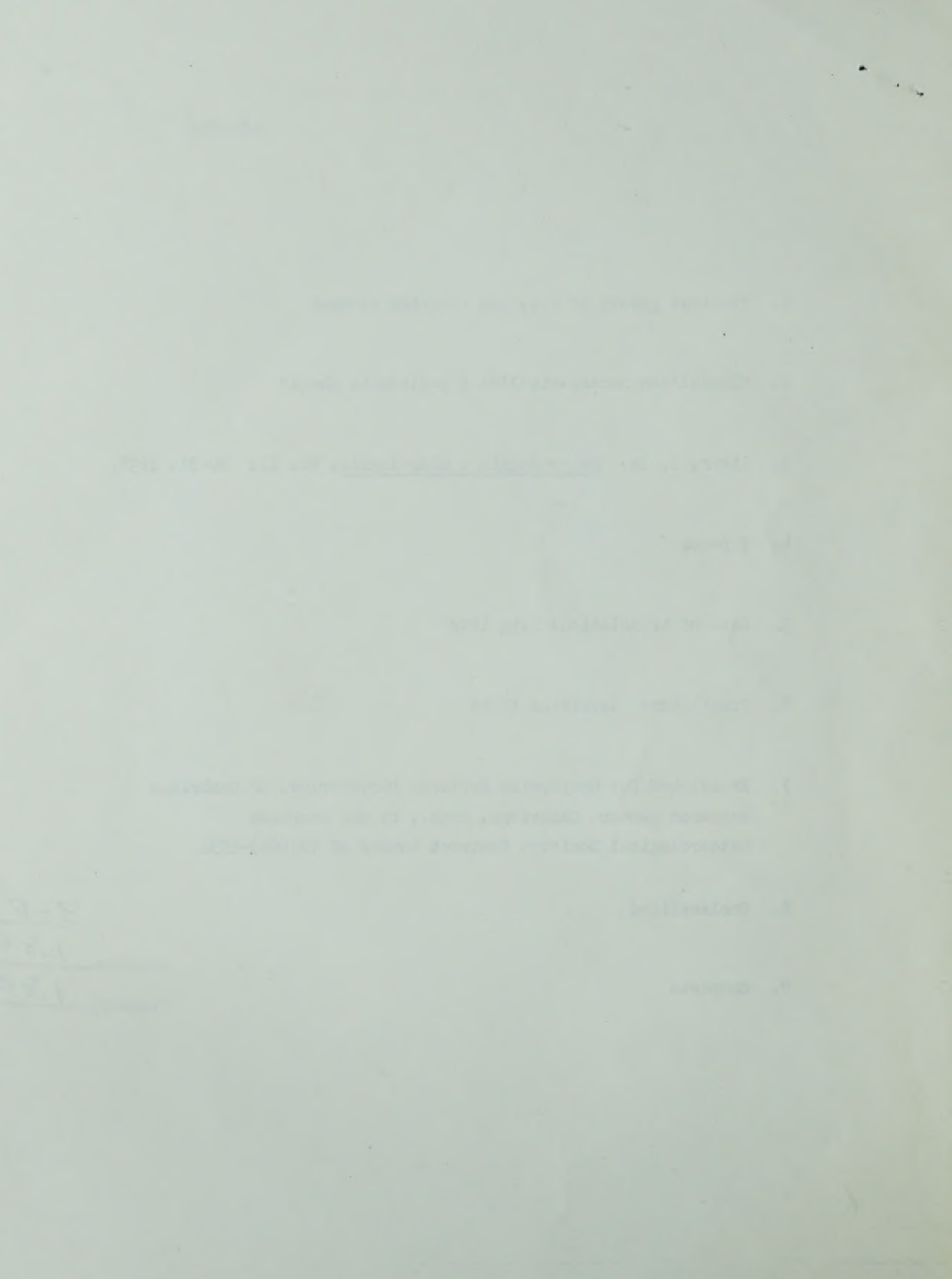
1. "Initial growth of ice, and underice sludge"
2. "Nachal'noe narastanie l'da i podlednaia shuga"
3. Liser, I. Ia. Meteorologiya i Gidrologiya, No. 11: 30-31, 1958.
4. 2 pages
5. Date of translation: July, 1959
6. Translator: Geraldine Kline
7. Translated for Geophysics Research Directorate, AF Cambridge Research Center, Cambridge, Mass., by the American Meteorological Society, Contract number AF 19(604)-1936
8. Unclassified
9. Complete

3-P  
Microfilm

1.80

Photocopy

1.80



# INITIAL GROWTH OF ICE, AND UNDERICE SLUDGE

by

I. Ia. Liser

In the period 29 November to 3 December 1957, a field ice-measurement survey was made on a portion of the Yenisei River near Krasnoyarsk. The examined portion of the river was 22 km long. Observations were made in profiles at kilometer intervals. On an average, observations were made at five points in each profile. Most often the distance between was 100 m, in a few instances 50 m. In all, 23 profiles were made, with 115 points. The following were determined at each point: depth of the river bed, ice thickness (total and submerged), depth of the snow cover, thickness of the layer of underice sludge and height of the hummocks.

During the survey period, there was no snow on the ice anywhere. The surface of the ice cover was hummocky over the whole area examined; the prevailing height of the hummocks was 1.0-1.5 m, the highest hummocks were 3.0-3.5 m. At one place, there was a polynya the whole width of the river, 0.5 km long (at kilometer No. 17 from the water gage point).

All ice thickness data were reduced to a single time, namely 29 November (the work was carried out on 29 and 30 November and 3 December). The ice thickness data thus calculated and also the data on the underice sludge for all profiles are given in table 1.

Table 1

Profile number	Average for a profile	
	Ice thickness in cm	Depth of layer of underice sludge in m
1	44	0.2
2	43	0.0
3	48	0.1
4	43	0.5
5	73	1.0
6	53	0.4
7	46	0.0
8	33	0.0
9	68	1.5
10	38	0.0
11	47	0.4
12	76	1.3
13	55	0.2
14	53	0.6
15	44	0.2
16	44	0.2
17	35	0.0
18	46	0.2
19	46	0.0
20	57	0.6
21	44	0.1
22	48	0.4
23	40	0.1



Digitized by the Internet Archive  
in 2022 with funding from  
University of Alberta Library

Despite the similarity of the initial data, one can construct a relationship between the ice thickness and the amount of sludge in the river bed (figure 1)

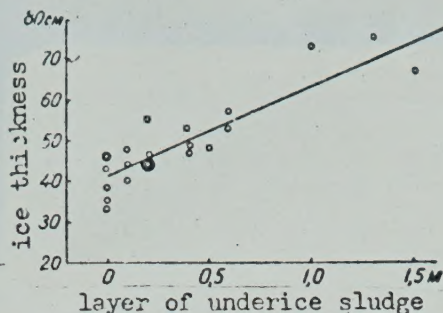


Figure 1. Ice thickness vs. amount of underice sludge

The presence of underice sludge, naturally, causes a more intensive growth of the ice. For the Yenisei River in the Krasnoyarsk region, the author found that the maximum ice thickness increased 25% due to the influence of underice sludge.

#### LITERATURE CITED

1. Liser, I. Ia. "Vesennie zatory na r. Enisee u g. Krasnoiarska" (Spring ice jams on the Yenisei River at Krasnoyarsk), Moscow. Tsentral'nyi Institut Prognozov, Trudy, Vol. 58, 1957.

University of Alberta Library

0 1620 0332 6350

2060

145-19

884

FEB 5 '79

of the

冬

Pam 551.326.3

## DEC 4 1964

[illegible]